

REMARKS

Claims 1-6, 18, 20-22, 25-30, 33 and 35-38 remain for prosecution in the present application.

The present application is directed to an apparatus and method for inspecting a container by determining the departure of the container bottom or the container bearing surface from a plane perpendicular to the axis of rotation of the container during inspection. The application contains independent claims 1 and 33.

Independent claim 1 recites an apparatus for inspecting container lean, which includes means for holding a container in position and rotating the container around an axis. A light source is positioned beneath the container for directing light energy onto the bottom of the container, and a light sensor also is positioned beneath the container to receive portions of the light energy reflected from the container bottom. An information processor is coupled to the light sensor for determining, as a combined function of the reflected light energy and container rotation, departure of the container bottom from a plane perpendicular to the axis of rotation. Independent claim 33 is directed to a method of inspecting a container bearing surface, which includes rotating the container around an axis and causing a light source to emit light that reflects off of a position on the bearing surface. A light sensor records the position at which the reflected light energy strikes the sensor. The departure of the bearing surface from a plane perpendicular to the axis of rotation is analyzed from the position data recorded from the sensor.

The Examiner has rejected both independent claims 1 and 33, as well as several dependent claims, over the combination of Bhatia 5,499,718 and Kulig 4,580,045. Before discussing application of the references cited by the Examiner to the application claims, the standards for analysis of these references and application of the same to the invention bear restating. As the CCPA well stated in *In re Carroll*, 601 F.2d 1184, 1186, 202 USPQ 571,572 (1979):

One of the more difficult aspects of resolving questions of non-obviousness is the necessity "to guard against slipping into use of hindsight." *Graham v. John Deere Co.*, 383 U.S. 1, 36, 148 USPQ 459, 474 (1965). Many inventions may seem obvious to everyone after they have been made. However, 35 U.S.C. 103 instructs us to inquire into whether the claimed invention "would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." Thus, in deciding the issue of obviousness, we must look at the prior art presented from a vantage point in time prior to when the invention was made, and through the eyes of a hypothetical person of ordinary skill in the art.

The standard of Section 103 is thus not what could be read into the references having applicant's disclosure and claims in mind.

It is difficult but necessary that the decisionmaker forget what he or she has been taught at trial about the claimed invention and cast the mind back to the time the invention was made..., to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art.

W. L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983). Simply stated, the references must be viewed for what they teach the artisan who has in mind the problem to which applicant's invention is directed, but not applicant's solution to the problem. Such standards for review unquestionably are often more easily

stated than applied, particularly when applicants' solution is seemingly simple and straightforward when viewed with the benefit of hindsight. *In re Carroll*, supra; *In re Sporck*, 301 F.2d 686, 689-690, 133 USPQ 360, 363 (CCPA 1962); *In re Marshall*, 578 F.2d 301, 198 USPQ 344 (CCPA 1978).

It is axiomatic that, to support a rejection of the subject claims on the basis of obviousness, it is necessary that the references teach, suggest or provide incentive to combine elements from various references to obtain the invention. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ 2d 1434 (Fed. Cir. 1988); *In re Geiger*, 815 F.2d 686 (Fed. Cir. 1987); *Ex parte Clapp*, 227 USPQ 972 (POBA 1985). This is particularly true, of course, where the elements of the references would be required to coact with each other in a manner different from the way they coact in the reference disclosures, or where the key or distinguishing element of the claims is completely lacking in the references.

[I]n order to meet the terms of the claims on appeal, the elements of the [prior art] device would have to be arranged in a manner different from that disclosed by [the art]. The elements of the reference would also be required to coact differently from the way they coact in the arrangement disclosed by the reference. The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide motivation or reason for the worker in the art, without the benefit of applicant's specification, to make the necessary changes in the reference device.

Ex parte Chicago Rawhide Mfg. Co., 223 USPQ 351, 353 (POBA 1984). See also *Fromsom v. Advanced Offset Plate, Inc.*, 755 F.2d 1549, 225 USPQ 26 (CAFC 1985); *In re Sernaker*,

702 F.2d 989, 217 USPQ 1 (CAFC 1983) and *Ex parte Stauber*, 208 USPQ 945, 946 (POBA 1980).

Simply stated:

It is wrong to use the [application] as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of non-obviousness in a court of law.

Orthopaedic Equipment Co., Inc. v. U.S., 702 F.2d 1005, 217 USPQ 193, 199 (Fed. Cir. 1983).

When the incentive to combine the teachings of the references is not readily apparent, it is the duty of the Examiner to explain why combination of the reference teachings is proper.

Ex parte Skinner, 2 USPQ 2d 1788, 1790 (BPAI 1987). This the Examiner has not done in the present application.

Turning to the cited references, Bhatia discloses devices for reading a "label" at the bottom portion of a container (FIG. 2) or for sensing stress cracks in the bottom of the container (FIGS. 3, 10 and 14). In the label reading apparatus of FIG. 2, a camera 60 receives light energy reflected from a label 54 to read the label. An exemplary label 54 is illustrated in FIG. 5. Although the container can be rotated, if necessary, to align the label with a camera (column 6, lines 33-34), the image of the label is obtained in a single scan of the cameras with the container stationary, and not as a function of container rotation (column 6, lines 66 to column 7, line 20). In the apparatus of FIG. 3, the container bottom is illuminated by a light source 70, with a portion of the light energy being reflected onto a camera 72. A mask 75 blocks light energy from the middle portion of the container bottom,

so that the light energy reflected onto the camera 72 is from the peripheral portion or “contact area” of the container bottom (column 10, lines 27-29). The reflected light energy is analyzed to identify stress cracks 92 (FIG. 7) as dark images against a light background in the image 90 of the container bottom (column 10, lines 37-39). The image 90 (FIG. 7) is obtained in a single scan of camera 72, and not as a function of rotation of the container. FIGS. 10 and 14 illustrate systems for inspecting the container bottom for stress cracks as the container is moved by a linear conveyor past the inspection station.

The Examiner suggests at page 2, third paragraph of the Office Action that Bhatia discloses an apparatus “for inspecting lean of a container.” Again at page 3, second paragraph, the Examiner suggests that Bhatia “determines departure of the periphery of the container bottom from a plane perpendicular” to the axis of rotation. It is respectfully submitted that Bhatia in fact discloses nothing at all relating in any way to inspecting container lean or determining departure of the container bottom, including specifically the bearing surface of the container bottom, from a plane perpendicular to a container axis of rotation at the inspection station. Bhatia does not even mention container lean or the plane of the container bottom. Bhatia only discloses an apparatus for reading a label on the container heel near the container bottom (FIG. 2) or for identifying stress cracks in the container bottom (FIGS. 3, 10 and 14). Thus, it is respectfully submitted that Bhatia has nothing whatever to do with the present invention as claimed.

(It also is noted that, in the paragraph bridging pages 3 and 4 of the Office Action, the Examiner relates Bhatia to the claim 33 language prior to the previous amendment to that claim.)

Kulig discloses an apparatus for inspecting glassware for “leaners” and “chokes.” The term “lean” is said to refer to “the extent to which the top of the bottle deviates in alignment from its base” (column 1, lines 17-19). The term “choke” is said to refer to “the opening in the top portion, or finish, of the bottle” (column 1, lines 19-21). Inspection for choked finish containers, of course, has nothing whatever to do with the present invention. What is important is that “leaners” are identified in Kulig by deviation of the top or finish of the container from alignment with its base and not by identifying or measuring departure of the plane of the base from an axis of rotation of the container. Indeed, the container is not rotated during inspection in Kulig. Rather, the containers 18 are presented in sequence by a linear conveyor 12 (FIG. 2). A pair of light sources 30,32 (FIG. 1) are positioned to direct light energy through the container sidewall onto the inside surface of the container bottom. A camera 34 is positioned to view the container inside bottom surface so illuminated through the mouth opening 22 of the container finish. The existence of a leaner (or of a choked finish container) is identified as a function of obscuration of the container bottom as viewed through the container mouth. In FIG. 3, the inside surface of the container bottom reflects a satisfactory amount of light through the mouth onto the sensor. FIG. 4 illustrates a leaner situation, in which the mouth of the container is offset sufficiently to reduce or obscure the amount of reflected light energy 22a. FIG. 5 illustrates a choked-finish situation in which the diameter of the container mouth is reduced as compared with FIG. 3 and allows only a reduced amount of light energy 22b to be reflected through the container mouth.

The Examiner suggests at page 3, third paragraph of the Office Action that Kulig discloses an apparatus wherein the processing circuit 50 “specifically determines the departure of the container bottom from a plane perpendicular to said axis.” As noted above, there is no “said axis” of rotation in Kulig. Furthermore, and even more importantly, the Kulig disclosure has nothing whatever to do with determination of the departure of the container bottom from a plane perpendicular to any axis. As noted above, Kulig specifically states that a leaner is identified by the extent to which the top or mouth of the container deviates from alignment with the container bottom or base. There is no disclosure or suggestion whatsoever that the processing circuit 50 could or should determine departure of the container bottom from a plane perpendicular to any axis, let alone as a combined function of light energy reflected from the outside of the container bottom and rotation of the container around an axis.

Thus, both independent claims 1 and 33 clearly are allowable over the combination of Bhatia and Kulig.

Dependent claim 2 recites that the light energy is directed from the source onto the periphery of the container bottom, and that the information processor determines the departure of the periphery of the container bottom from a plane perpendicular to the axis of rotation. There is no disclosure or suggestion of this feature in the cited references.

Dependent claim 3 recites that the container includes knurling around the periphery of the container bottom, and that the information processor is responsive to the reflected light energy to determine the depth of the knurling. Baldwin 5,510,610 is cited relative to claim 3. Baldwin discloses that a container bottom can include knurling, which of course is well known in the art as described in the present application text. However,

Baldwin discloses an algorithm to facilitate inspection of a container bottom by removing the effects of knurling on identification of "defects" such as air bubbles (FIGS. 4-10). Baldwin has nothing whatever to do with determination of the depth of the knurling.

Claims 4-6 are allowable both by reason of dependency from claim 1, which is itself allowable for reasons set forth above, and because of the additional novel limitations set forth therein. Ringlien 5,489,987 is cited relative to claim 6, but is not relevant to the recitations of independent claim 1 from which claim 6 depends.

Claims 18 and 20-22 are directed to reflection and/or analysis of light energy from knurls on the container bottom. The Examiner cites Baldwin relative to these claims. However, as noted above, Baldwin is directed to an algorithm for eliminating the effects of knurls for inspection purposes, and not to analysis of light energy reflected from knurls on the container bottom.

Dependent claims 25-30 are allowable for reasons discussed above in connection with claim 1, and because of the additional novel limitations set forth therein.

Claims 35-38 are allowable by reason of dependency from independent claim 33 discussed above, and because of the additional novel limitations set forth therein.

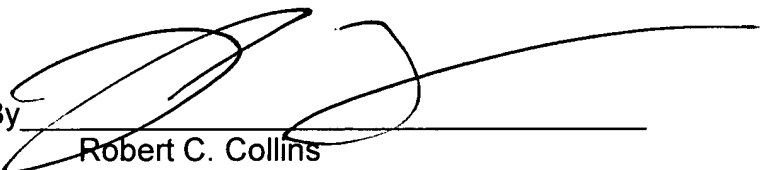
Nonaka 5,195,026 has been cited relative to dependent claim 29, and is not relevant to the distinguishing features of the application claims discussed above.

In summary, it is believed and respectfully submitted that all claims 1-6, 18, 20-22, 25-30, 33 and 35-38 remaining in the application are allowable at this time, and favorable action is respectfully solicited.

Please charge any fees associated with this submission to Account No. 15-0875 (Owens-Illinois).

Respectfully submitted,

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